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# MYOCARDIAL PERFUSION IMAGING IN PEDIATRICS USING CARDIAC MAGNETIC RESONANCE: SAFETY, EFFICACY AND INDICATIONS

ACC Poster Contributions
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Session Title: MRI: Diagnosis and Prognosis
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**Background:** Myocardial perfusion imaging (MPI) is performed during cardiac MRI (CMR) evaluations in pediatric pts to evaluate coronary perfusion defects. No data exist on the safety, efficacy and indications of MPI in pediatric pts.

**Methods:** A retrospective review was performed in consecutive patients from birth to 20 years who underwent CMR at our institution from January 2005 to September 2009. Patients with MPI composed the study group.

**Results:** 73 of 1939 (4%) pediatric CMR studies included MPI, age 10.8±6.4 yrs (m±SD). MPI was most commonly used to evaluate congenital heart disease (CHD) (27/73; 37%) and cardiomyopathies (20/73; 27%); other indications are listed in the table. Adenosine stress MPI was performed in 22/73 (30%). Perfusion defects were seen in 19/73 (27%) pts and abnormal ventricular wall motion was present in 21/73 (29%). In those with perfusion defects and wall motion abnormalities, 11/13 (85%) defects correlated with the wall motion abnormalities. No adverse events were associated with MPI without adenosine. Self-limited adverse reactions occurred in 3/22 (14%) of MPI with adenosine (2 with chest pain, 1 requiring oxygen for presumed decrease in saturation).

**Conclusions:** MPI is safe for various indications in pediatric pts with and without CHD. Defects in MPI correlate well with the presence of regional wall motion abnormalities. Self-limited adverse reactions can be seen when adenosine is used in MPI.

Table. Indications for Myocardial Perfusion Imaging in Pediatric Patients

| Indications | Number | Perfusion Defects |
|---|---|---|
| Congenital heart disease | | |
| Cyanotic | 18 | 7 (39%) |
| Acyanotic | 10 | 0 (0%) |
| Coronary abnormalities | | |
| Anatomic | 6 | 1 (17%) |
| Ischemia | 4 | 3 (75%) |
| Cardiomyopathy | | |
| Known | 11 | 5 (45%) |
| Suspected | 9 | 1 (11%) |
| Cardiac tumor | 8 | 0 (0%) |
| Inflammatory disease | | |
| Kawasaki disease | 6 | 2 (33%) |
| Polyarteritis nodosa | 1 | 0 (0%) |